

What is claimed is:

1. A multi-component conductive yarn comprising a primary component and a secondary component:

said primary component consists of at least one elongated filament formed of polymeric material;

said secondary component consists of a blend of polymeric material and carbon bonded with said primary component along its length;

said carbon material of said secondary component comprises carbon nanotubes which constitute up to 20% of said secondary component; wherein, said conductive yarn comprises no more than 10% carbon nanotubes.

2. The yarn of claim 1 wherein said polymeric material of said primary component is formed of at least one of polyester, polyamide, polypropylene, polyethylene, PPS and PEEK.

3. The yarn of claim 1 wherein said polymeric material of said secondary component includes at least 80% of at least one of polyester, polyamide, polypropylene, polyethylene, PPS and PEEK.

4. The yarn of claim 1 wherein said secondary component comprises a sheath bonded with and surrounding said filament of said primary component.

5. The yarn of claim 1 wherein said secondary component comprises an elongated filament bonded with said filament of said primary component along its length.

6. The yarn of claim 1 wherein said secondary component comprises between 0.5% and 50% of said multi-component yarn.

7. The yarn of claim 5 wherein said carbon nanotubes comprise up to 20% of said secondary component.

8. The conductive yarn of claim 1 wherein said primary component is set prior to bonding with said secondary component.

9. The conductive yarn of claim 1 wherein said multi-component yarn is set.

10. The conductive yarn of claim 1 wherein said primary component comprises a plurality of elongated filaments of synthetic material.

11. The conductive yarn of claim 10 wherein at least two of said plurality of filaments are formed of different polymers.

12. The conductive yarn of claim 10 wherein said filaments are set prior to bonding with said secondary components.

13. A method of forming a conductive multi-component yarn including:  
providing a first component comprising at least one elongated filament of synthetic material and setting said filament;

providing a second component consisting of a composition including polymeric resin and carbon nanotubes and further providing that the carbon nanotubes comprise between 0.1% to 25% of the composition;

passing said first component through an extruder die and extruding said second component onto said first component forming a conductive filament along said first component; and,

curing said multi-component yarn.

14. The method of claim 13 including setting said elongated filament of said first component prior to passing said first component through said extruder.

15. A fabric formed by one of weaving, knitting, braiding and interlacing utilizing the yarn formed by the method of claim 13.

16. A fabric which is one of non-woven and interlaid utilizing the yarn formed by the method of claim 13.

17. A method of forming a multi-component conductive yarn including the steps:

providing a first component comprising at least one resin of polymeric resin;

providing a second component including a composition including a polymeric resin and carbon nanotubes with the carbon nanotubes comprising between 0.1% to 25% of the composition;

providing two extruders and extruding simultaneously said first and second components forming said first and second filaments;

causing said first and second filaments to bond along their length forming a conductive multi-component yarn; and

curing said conductive multi-component yarn.

18. The method of claim 17 wherein said curing includes passing said bonded first and second filaments between draw rolls and a heater causing said multi-component yarn to be heat set.

19. A fabric formed by one of weaving, knitting, braiding and interlacing utilizing the yarn formed by the method of claim 17.

20. A fabric which is one of non-woven and interlaid utilizing the yarn formed by the method of claim 17.